

EITEL-McCULLOUGH, INC.

SAN BRUNO, CALIFORNIA

100TH

HIGH-MU TRIODE
MODULATOR
OSCILLATOR
AMPLIFIER

The Eimac 100TH is a high-mu power triode having a maximum plate dissipation rating of 100 watts, and is intended for use as an amplifier, oscillator, or modulator. It can be used at its maximum ratings at frequencies as high as 40-Mc.

Cooling of the 100TH is accomplished by radiation from the plate, which operates at a visible red color at maximum dissipation, and by means of air circulation by convection around the envelope.

GENERAL CHARACTERISTICS

ELECTRICAL

Filament:	Thoriated tungsten	
Voltage	- - - - -	5.0 volts
Current	- - - - -	6.3 amperes
▶ Amplification Factor (Average)	- - - - -	38
Direct Interelectrode Capacitances (Average)		
Grid-Plate	- - - - -	2.0 $\mu\mu\text{f}$
Grid-Filament	- - - - -	2.9 $\mu\mu\text{f}$
▶ Plate-Filament	- - - - -	0.3 $\mu\mu\text{f}$
▶ Transconductance ($i_b=200$ ma., $E_b=3000\text{v.}$, $e_c=-5\text{v.}$)	- - - - -	4500 μmhos
Frequency for Maximum Ratings	- - - - -	40 Mc.

MECHANICAL

Base	- - - (Medium 4-pin bayonet, ceramic)	RMA type M8-078
Basing	- - -	RMA type 2M
▶ Mounting	- - -	Vertical, base down or up.
▶ Cooling	- - -	Convection and Radiation.

▶ Recommended Heat Dissipating Connectors:

Plate	- - - - -	Eimac HR-6
Grid	- - - - -	Eimac HR-2

Maximum Overall Dimensions:

Length	- - - - -	7.75 inches
Diameter	- - - - -	3.19 inches

Net weight - - - - - 4 ounces

Shipping weight (Average) - - - - - 1.5 pounds

AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR

Class-AB₂ (Sinusoidal wave, two tubes unless otherwise specified)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	- - - - -	3000 MAX. VOLTS
MAX-SIGNAL D-C PLATE CURRENT, PER TUBE	- - - - -	225 MAX. MA.
PLATE DISSIPATION, PER TUBE	- - - - -	100 MAX. WATTS

▶ TYPICAL OPERATION

D-C Plate Voltage	- - - - -	1500	2000	2500 Volts
D-C Grid Voltage (approx.)*	- - - - -	-20	-35	-50 Volts
Zero-Signal D-C Plate Current	- - - - -	80	60	48 Ma.
Max-Signal D-C Plate Current	- - - - -	320	280	250 Ma.
Effective Load, Plate-to-Plate	- - - - -	8800	15,000	22,000 Ohms.
Peak A-F Grid Input Voltage (per tube)	- - - - -	145	150	155 Volts
Max-Signal Peak Driving Power	- - - - -	18	19	15 Watts
Max-Signal Nominal Driving Power (approx.)	- - - - -	9	9.5	7.5 Watts
Max-Signal Plate Power Output	- - - - -	280	360	425 Watts

*Adjust to give stated zero signal plate current.

RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Class-C Telephony or FM Telephony
(Key-down conditions, per tube)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	- - - - -	3000 MAX. VOLTS
D-C PLATE CURRENT	- - - - -	225 MAX. MA.
PLATE DISSIPATION	- - - - -	100 MAX. WATTS
▶ GRID DISSIPATION	- - - - -	20 MAX. WATTS

TYPICAL OPERATION

D-C Plate Voltage	- - - - -	1500	2000	3000 Volts
D-C Grid Voltage	- - - - -	-65	-80	-200 Volts
D-C Plate Current	- - - - -	190	165	165 Ma.
D-C Grid Current	- - - - -	48	39	51 Ma.
Peak R-F Grid Input Voltage	- - - - -	230	230	385 Volts
Driving Power (approx.)	- - - - -	10	8	18 Watts
Grid Dissipation	- - - - -	7	5	10 Watts
Plate Power Input	- - - - -	285	335	500 Watts
Plate Dissipation	- - - - -	100	100	100 Watts
Plate Power Output	- - - - -	185	235	400 Watts

▶ PLATE MODULATED RADIO FREQUENCY AMPLIFIER

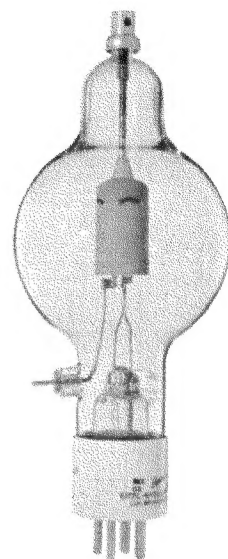
Class-C Telephony (Carrier conditions, per tube)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	- - - - -	2500 MAX. VOLTS
D-C PLATE CURRENT	- - - - -	180 MAX. MA.
PLATE DISSIPATION	- - - - -	65 MAX. WATTS
GRID DISSIPATION	- - - - -	20 MAX. WATTS

TYPICAL OPERATION

D-C Plate Voltage	- - - - -	1500	2000	2500 Volts
D-C Grid Voltage	- - - - -	-150	-200	-250 Volts
D-C Plate Current	- - - - -	160	150	140 Ma.
D-C Grid Current	- - - - -	46	41	40 Ma.
Peak R-F Grid Input Voltage	- - - - -	325	375	425 Volts
Driving Power (approx.)	- - - - -	15	15.5	17 Watts
Grid Dissipation	- - - - -	8	7.3	7 Watts
Plate Power Input	- - - - -	240	300	350 Watts
Plate Dissipation	- - - - -	65	65	65 Watts
Plate Power Output	- - - - -	175	235	285 Watts





DRIVING POWER vs. POWER OUTPUT

The three charts on this page show the relationship of plate efficiency, power output and grid driving power at plate voltages of 1500, 2000 and 3000 volts. These charts show combined grid and bias losses only. The driving power and power output figures do not include circuit losses. The plate dissipation in watts is indicated by P_p .

Points A, B, and C are identical to the typical Class C operating conditions shown on the first page under 1500, 2000, and 3000 volts respectively.

